

14 MAY 1945

SERIAL C.S.A.77

SEPARATE

BOLETIN
DE

ENTOMOLOGIA VENEZOLANA

PATROCINADO POR EL MINISTERIO DE SANIDAD Y ASISTENCIA SOCIAL

Vol. III — 31 de Diciembre de 1944 — No. 4

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CARACAS

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1745
SOME NEW SPECIES OF THE GENUS SALPINGOGASTER

by

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Several years ago Dr. Hanz Czerny of the Naturhistorischer Museum in Vienna, submitted a small collection of miscellaneous Syrphids to the author for study and identification. Most of the undescribed species in this material have been presented in several journals. This paper describes four species of *Salpingogaster* found in this material which appeared distinct from known species. The types were returned in 1938 to the Vienna Museum.

Salpingogaster petiolata n. sp.

Related to *minor* Austen. The mesonotum is dark brown with a medial, opaque black vitta fading before the scutellum and margined brown and brown pubescent vittae on either side. Face yellow.

Female. Length 14.5 mm.; of wing 11 mm. Head: the upper part of the occiput is dull black, silvery pubescent in the extreme angles from the side. The vertex behind, and in front of the ocelli for a short space, is shining black. The middle of the front is subopaque black, with a medial impression and a pair of fainter, submedial impressions; also the sides of this middle area for a little greater length, are

pale yellow. The region just before the antennae is much rounded and swollen and polished shining black and black pilose. The antennae are brown the basal joint darker; arista brown. The extreme upper part of the face opposite the lower base of the antennae is brown; the rest of face and checks is pale yellow; there is a stripe from the epistoma to the tubercle, brownish yellow; there is no brown spot on the face or above the tubercle. The lower occiput is silver pubescent and silver pilose with one row on its fringe. Thorax: dark sepia brown, almost black. There is a quite narrow, opaque sepia vitta darker than the rest, which fades into a barely acute triangle of black ground color just before the scutellum. In some lights, and more conspicuously before the scutellum, there is on either side of the medial vitta, a reddish-brown vitta of pubescence; these vittae border the dark medial vittae anteriorly and diverge posteriorly a short distance from the scutellum. Sides of the thorax widely, but only before the suture, pale yellow. The humeri and a wide mesopleural wedge, widest above and continuous with the notopleural spot, also pale yellow. There are no other yellow spots upon the pleura. Halteres light brown, brown knobbed. The scutellum has the rim and narrow base pale yellow, the disk broadly brown. Abdomen: orange-brown, the base of the first segment yellow; apparently there are no dark markings. Legs: yellow, the hind femora light brownish and almost yellow, with a narrow, short, basal, dark brown annulus. Tibia pale yellow, the apical third of the hind tibia brown. All the tarsi brown, the fore and hind ones darkest. Wings: yellowish-brown, the costal cell entirely yellow, the stigmal cell light brown, the anterior tip of wing pale brown.

Holotype: a female, Río Songo, Ost Bolivia, 800 meters, (Fassl.). In Vienna Museum.

Salpingogaster maculipennis n. sp.

Related to *relictus* Curran. Distinguished by the sepia spot at the inner ends of the mesonotal sutures; loop of third vein unusually deep and angulated.

Female. Length 14.8 mm.; of wing 12 mm. Head: the upper occiput, to not quite where the kink in the occiput begins, steel-blue; black below, and to the cheek level silvery pubescent. Eyes bare, the vertex swollen in an elongated oval block, the ocelli at its anterior end, brownish-black in color; there is a small, vitreous, black spot in front of the front ocellus, upon the subopaque black-brown ground color; on either side of the anterior ocellus, touching the eyes, is a small yellow spot. Front dark brown on the upper half, almost black, with a medial vittate impression; the lower half of the front, to a short distance below the antennae, dark red-brown; midway on the sides of the front, on the eye margins, is another pair of small yellow spots, almost as large as the upper pair. The first and second joints of the antennae are dark red-brown, the third orange; arista light brown. The face and cheeks are a rich orange-yellow with the merest suggestion of a spot above the facial tubercle; it is probably better described as absent. Thorax: red-brown. There are four brown-grey vittae, the medial pair barely narrower and separated by dark sepia-brown; the inner and outer pair are separated by sepia, which becomes a widened vittate spot at the dorsal suture upon their inner ends; the sides of the thorax, just past the suture, are for a short distance also sepia. Pleura light red-brown, darker upon the mesopleura; there is narrow, bright yellow stripe, from the side of the thorax at the top reaching through the upper half of the lower mesopleura. The humeri and a narrow, posterior, pleural stripe are yellow. The scutellum is red-brown, more yellowish near the apex, and with a definite but narrow, yellow basal band. Abdomen: red-brown, the base of the first segment yellow. The last five segments are quite dark brown and apparently without markings, though there is a trace of a blackish area on the fourth segment. Legs: coxae dark brown. The hind femora is narrowly yellow at tip; upon the base and trochanters very dark brown, almost black. The hind tibia are pale yellow with narrow middle brown annulus; the middle femora and tibia, and fore femora and tibia and tarsi pale yellow. Front and middle trochanters yellow-brown. Middle

and hind tarsi barely darker than their pale tibiae. Wings: pale yellowish-brown. The costal cell only as far as the stigma and the three cells behind, not quite this far, light yellow. The stigmal cell is almost black; the marginal cell behind it dark brown becoming pale brown through out its remainder. Kink of third vein deep, oblique and angular; flexures of marginal cross veins unusually deep.

Holotype: a female. (Winthem) in the Vienna Museum. Locality uncertain, but almost certainly from South America as all known species are neotropical.

Salpingogaster cornutus n. sp.

Second and third abdominal segments yellowish-orange with medial brown stripe; sides of first segment thorn-like; face yellow, wings pale yellow. Related to *abdominalis* Sack.

Female. Length 16.5 mm. Head: the vertex and upper occiput are black with blackish pile; the front is dull black, protuberant on the lower half, the sides narrowly and sharply pale yellow but interrupted below by a rounded protuberance of the black color on either side opposite the antennae. The pile of the front is short and black. The antennae are dark brown, the arista brown, paler at its immediate base. The third joint is reddish basally. The face and cheeks entirely clear bright yellow, the tubercle small. Thorax: dull black with three rather narrow blackish vittae, more opaque than the greyish dusted black of the disc. The humeri and the margins of the notapleura are bright yellow and continuous with a narrow, slightly yellow, oblique stripe upon the posterior part of the mesopleura and the upper part of the sternopleura. There is a trace of a small, inconspicuous, yellowish spot upon the upper part of the metapleura. The scutellum is dark brown; the posterior border is narrowly yellowish; the pile is short, sparse and golden. Abdomen: first segment dark brown, but narrowly yellow along its anterior margin; it has a sharp lateral spur. The second segment is very long and slender and subcylindrical; it is light orange in color with a narrow, dark brown, medial stripe. The third

segment is similar in color, is quite laterally compressed, and has a similar, medial stripe which is evanescent near the posterior border. The anterior part of the fourth segment is narrowly orange-brown; the remainder of this segment and the following segment are shining black with slight milky-bluish cast. Legs: the anterior femora and tibiae, the basal half of their basi tarsi, their last tarsal joints and the whole of the middle legs are light yellow. The posterior legs are dark brown except that there is a long, subbasal, yellow stripe on the lateral surface only of their hind femora. Wings: pale yellowish throughout including the stigma; loop of third vein moderate.

Holotype: a female, and one paratype female; Venezuela. The type is in the Vienna Museum, the paratype in the author's collection.

Salpingogaster vera n. sp.

First and second segments and most of third light reddish-brown; sides of first obtuse; face yellow with black vitta. Related to *lineata* Sack.

Male. Length 15 mm. Head: the vertex and front shining black, the sides of the front narrowly yellowish-brown; the pile is sparse and black. The cheeks and face are yellow, the latter with a broad blackish-brown stripe including the low tubercle. The antennae are dark reddish-brown. Thorax: dully shining black; almost bare, with quite sparse and very short brown pile. It does not have conspicuous vittae. The humeri are yellow and there is an inner yellow humeral band which follows diagonally and posteriorly around the humeri to include most of the notopleura and thence goes down over the reddish-sepia pleura to cover the posterior margin of the mesopleura and the upper middle and sternopleura. The posterior part of the pleura is entirely dark. The scutellum is translucent, light reddish; its base narrowly yellowish; its disc has sparse, short, setaceous, brown pile. Abdomen: quite slender; somewhat laterally compressed on the third and fourth segments; the second segment is exceptionally long,

slender, subcylindrical and also a little laterally compressed. The first and second segments and all but the apical fifth of the fourth segment are light yellowish or reddish-brown, diffusely shading into the shining, slightly brassy black of the posterior portion of the third and whole of the remaining segment. Hypopygium with a bulging, rounded dome or knob above and a rounded protrusion below which is exceedingly dense, black setate. Legs: light yellow, the first three joints of the anterior tarsi and the first four joints of the hind tarsi quite dark brown; the hind femora and the hind tibiae are just barely darker in color than the remainder of the legs, these tibiae slightly paler, narrowly in the middle. Wings: pale brownish-yellow, the stigmal cell light brown, the loop of the third vein low.

Holotype: a male and one paratype male, Río Songo, Ost Bolivia, 800 meters. The type is in the Vienna Museum, the paratype in the author's collection.

Rus
NEW OR LITTLE-KNOWN TIPULIDAE FROM
VENEZUELA (DIPTERA)

Part V

by

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The preceding part under this general title was published in the *Boletín de Entomología Venezolana*, 3: 30 sept., 1944. To the present date, a total of 50 species of *Tipulidae* had been recorded from Venezuela in this series of reports. In the present instalment I am adding 28 further species to this list, virtually all in the vast genus *Limonia*. Most of these species had not previously been reported from the Republic but a certain number described in various publications are included in order to complete the data. I am greatly privileged to be able to retain the types of the new species described herewith but duplicates of various species, as well as further named material from my own collection, will be returned to Mr. Anduze for the National Collection. As before, the materials considered herewith result from the efforts of Messrs. Pablo J. Anduze, Rene Lichy and Gaston Vivas-Berthier, and my deepest thanks are here extended to these entomologists for their appreciated efforts to make known these often neglected flies.

TIPULINAE

51. *Tanypremna (Tanypremna) incompleta* sp. n.

Allied to *kadeni*; pronotum and propleura blackened; mesonotal praescutum obscure testaceous yellow, the cephalic fifth blackened; lateral praescutal borders dark brown, continued laterad over the dorsopleural membrane but not involving the pleura; femora obscure brownish yellow, the tips more blackened; tibiae and tarsi medium brown throughout; wings pale brownish yellow, patterned with darker brown at stigma, anterior cord, and less evidently as seams over the outer veins; abdominal tergites reddish yellow on basal half of each, the distal portions blackened; male hypopygium with the tergite only shallowly emarginate; inner dististyle with a conspicuous blackened lateral flange.

Male. Length about 21 mm.; wing 15 mm.

Frontal prolongation of head above, including the elongate nasus, yellow, the sides and ventral portions conspicuously blackened; palpi brownish black, the terminal segment paling to light yellow. Antennae with scape and pedicel light yellow; flagellum broken. Front and anterior vertex light yellow, the latter approximately three times the diameter of scape, behind the antennal bases elevated into two folds; posterior portion of head light brown, with two very large, darker brown areas on sides of posterior vertex, adjoining the eyes, almost meeting at the midline.

Cervical region yellow. Pronotum blackened, the color continued as a narrow black line across the pleura to base of fore coxa. Mesonotal praescutum obscure testaceous yellow, the cephalic fifth blackened, the lateral portions behind the pseudosutural foveae dark brown, continued across the dorsopleural membrane as a more blackened spot; scutum brownish testaceous, unpatterned; scutellum and postnotum more testaceous yellow, the latter more or less yellow pollinose; pleurotergite yellow, the katapleurotergites slightly darker. Pleura yellow, unpatterned, except on the propleura, as described, and again very feebly on the ventral sternopleurite.

Halteres elongate, stem obscure yellow, knob brownish black. Legs with the coxae yellow; trochanters yellow, suffused with green; femora obscure brownish yellow, the tips more blackened; tibia and tarsi medium brown, unpatterned. Wings with the ground color pale brownish yellow, the prearcular and costal fields clearer yellow; stigma brown, confluent with a large darkened area over the anterior cord; posterior cord and veins beyond the cord, especially in the radial field, narrowly but evidently seamed with brown; veins brown. Venation: R_s less than twice the basal section of R_{4+5} ; R_{2+3} long, gently arcuated, nearly twice R_s ; cell 1st M_2 elongate, exceeding vein M_3 beyond it; cell M_1 about twice its petiole; $m-cu$ connecting with M_{3+4} at near three-fourths to four-fifths the length; cell 2nd A moderately wide.

First abdominal tergite obscure brownish yellow; succeeding tergites blackened apically, with about the proximal half more yellowed or reddish yellow, this latter again faintly patterned with darker; sternites reddish yellow; subterminal segments more extensively darkened; hypopygium with tergite and dististyles darkened, the basistyle conspicuously yellow except at apex. Male hypopygium (Fig. 3) with the tergite, $9t$, only shallowly emarginate, with scarcely developed lateral lobes. Basistyle, b , very long and slender, on mesal before apex with a low tubercle bearing several conspicuous setae. Outer dististyle, od , a flattened cultriform dusky blade. Inner dististyle, id , with a blackened lateral flange that bears several strong spinous setae.

Holotype, ♂, Naiguatá, D.F., July 23, 1939 (*Vivas Berthier*).

Tanypremna (Tanypremna) incompleta is closely related to *T. (T.) kadeni* Alexander, likewise from Venezuela, agreeing in the general features of coloration, venation, and structure of the male hypopygium. It differs in the smaller size, broken transverse stripes on the thoracic pleura, and in details of structure of the male hypopygium, especially the even less emarginate ninth tergite and the details of the inner dististyle, both as to conformation and the size and armature of the lateral darkened flange.

52. *Tipula chacopata* sp. n.

Belongs to the *monilifera* group; antennae (male) relatively short, approximately one-half the length of wing; femora obscure yellow, the tips rather narrowly brownish black; wings with a strongly contrasted pattern of whitish subhyaline, dark brown and paler brownish gray; subterminal abdominal segments blackened; male hypopygium with the tergite having very conspicuous canthi, separated from the obtuse outer lateral lobes by a narrow notch; beak of inner dististyle unusually narrow; setae of outer margin of style pale and relatively weak, not produced into long-produced, angularly bent tips as in *pantherina*; lobe of eighth sternite small.

Male. Length about 12.5-13 mm.; wing 14-15 mm.; antenna about 7 mm.

Female. Length about 20 mm.; wing 17 mm.

Frontal prolongation of head obscure grayish yellow above, including the conspicuous nasus, more darkened on ventral half; palpi black, the incisures paler. Antennae (male) relatively short, approximately one-half the length of wing; scape, pedicel and first flagellar segment yellow; succeeding segments conspicuously bicolored, the basal knot black, the remainder yellow; on intermediate segments, the color of the latter deepens to brown; outer two or three segments almost uniformly blackened. Head light buffy brown, sparsely pruinose, clearer in front; a very narrow capillary dark brown median vitta.

Pronotum light brownish gray, infuscated medially and on sides. Mesonotal praescutum with the ground buffy, with four brownish gray stripes, the intermediate pair separated by a capillary dark brown central vitta; interspaces with very conspicuous brown setigerous punctures; lateral praescutal borders more or less mottled with brown; scutum brownish gray, the centers of lobes with darker brown areas; edge of

central portion of scutum with a few dark setigerous punctures; posterior sclerites of notum more brownish gray, the mediotergite narrowly more darkened on sides. Pleura and pleurotergite chiefly yellow, with a sparse gray pruinosity; dorsopleural membrane yellow. Halteres with stem brown, its base narrowly yellow, knob blackened. Legs with the coxae pale, sparsely pruinose; trochanters yellow; femora obscure yellow, the tips rather narrowly brownish black; tibiae yellowish brown, the tips very narrowly darker; basitarsi pale brown, the outer segments darker; claws (male) with a very conspicuous tooth. Wings with the ground whitish subhyaline, conspicuously patterned with dark brown and paler brownish gray washes, quite as in the normal contrasted *monilifera* pattern; the darkest color includes the prearcular and costal fields, the latter encroaching behind over much of cell *R*; stigma and a confluent area over anterior cord; distal end of outer radial field; a conspicuous broken seam along vein *Cu* in cell *M*, including a mark just beyond mid-length, with a second area over the distal portion, including *m-cu*; cell *Cu* with a conspicuous area near base; the subhyaline ground color includes a broad post-stigmal band from costa through cell *1st M*₂, more or less distinctly involving the adjoining portions of other cells; distal end of cell *R*₅ and basal half of *M*₁ whitened; basad of cord, unusually conspicuous white areas alternate with the brownish gray washes in a characteristic zigzag pattern, especially in cells *M*, *Cu* and *1st A*; basal third of cell *2nd A* pale; cells *C* and *Sc* uniformly darkened; veins dark brown, much paler in the white areas. Venation: Tip of *R*₁₊₂ atrophied; *Rs* long, approximately two and one-half times *m-cu*; *m* shorter than petiole of cell *M*₁.

Abdominal tergites reddish brown, only weakly patterned with darker; subterminal segments, including bases of eighth sternite and ninth tergite blackened; basal sternites pale reddish brown. Male hypopygium (Fig. 1) with the terg-

ite, 9t, deeply notched medially, the inner angles of the lobes produced into slender flattened blades or canthi that are further separated from the broader lateral lobules by unusually narrow U-shaped notches; dorsal surface of tergite with a deep and narrow median groove extending the entire length. Outer dististyle weakly expanded on outer third, the diameter at that point exceeding twice that of the stem. Inner dististyle with the beak, *id*, unusually long and narrow, the outer margin before the beak thrown up into seven or eight coarse corrugations; setae of outer margin of style long but pale and relatively weak, not forming a comb as in *pantherina* and some others. Gonapophyses with all lobes broadly and obtusely rounded. Eighth sternite, 8s, with the median lobe unusually small, with relatively few setae, forming a loose apical brush.

Holotype, ♂, road Maracay-Choroní, altitude 1,000 meters, October 22, 1938 (*Anduze*). *Allotopotype*, ♀, pinned with type, *Paratypes*, 1 ♂, 1 ♀, in copula, road between Caracas and Colonia Tovar, kilom. 17, altitude 1,700 meters, October 22, 1938 (*Anduze*); 1 ♀, from the type locality, kilom. 16,500, February 19, 1939 (*Anduze*); 2 ♀ ♀, El Junquito, Colonia Tovar, January 15, 1939 (*Vivas Berthier*); 1 ♂, 1 ♀, Chachopo, Mérida, altitude 2,800 meters, August 7, 1942 (*Lichy*).

The specific name is that of a Carib tribe of Venezuela. The fly is most similar to the species next described, *Tipula palenca* sp. n., from which it differs especially in the structure of the male hypopygium.

53. *Tipula palenca* sp. n.

Belongs to the *monilifera* group; allied to *chacopata*; antennae (male) relatively short, approximately one-half the length of wing or less; basal flagellar segments bicolored; wings with an unusually contrasted pattern of whitish subhyaline, dark brown and paler brownish gray, including a broad pale post-stigmal band; male hypopygium with the caudal margin of the ninth tergite subtruncate, the inner

angles of the lobes narrowly obtuse at their tips; setae of outer margin of inner dististyle rather delicate and not forming a single strong row; lobe of eighth sternite small.

Male. Length about 13.5-15 mm.; wing 15-17.5 mm.; antenna about 7.3-7.5 mm.

Female. Length about 21 mm.; wing 17.5 mm.

Frontal prolongation of head above buffy, gray pruinose especially at base, the sides and lower surface infuscated; palpi black, the incisures restrictedly pale. Antennae (male) relatively short, approximately one-half the length of wing or less, of the normal structure for the group; flagellar segments long-cylindrical, with unusually abrupt basal knot; segments with two or three setae on outer face of pedicel distad of the swelling; scape and pedicel pale yellow, especially the later; first flagellar segment brownish yellow; succeeding segments bicolored, obscure brownish yellow, the basal knot black; outer segments more uniformly darkened. Head buffy gray, paler yellow in front, the sides of posterior vertex infuscated.

Pronotum obscure yellow, narrowly dark brown medially, more broadly so on sides. Mesonotal praescutum buffy, with four very poorly differentiated more grayish stripes, with a further very delicate, more or less broken capillary dark brown median vitta; interspaces with unusually conspicuous dark brown setigerous punctures; lateral praescutal borders and humeral region broadly infuscated; scutum buffy, each lobe with two moderately conspicuous brown areas, the median region with a capillary brown vitta; suture between praescutum and scutum with a V-shaped central darkening; parascutella dark; mediotergite buffy gray, with a conspicuous brown longitudinal sublateral stripe on either side, the lateral borders narrowly pale; scutellum on basal portion more or less variegated with brown, including an abbreviated median line and lateral spots; capillary dark central vitta on mediotergite not or scarcely evident. Pleura and pleuro-

tergite yellow, the propleura more infuscated. Halteres black, the base of stem restrictedly light yellow. Legs with coxae light yellow, the anterior faces of fore and middle pairs more darkened; trochanters yellow; femora obscure yellow, the tips narrowly and rather inconspicuously darkened; tibiae obscure brownish yellow, the tips narrowly darker; tarsi dark brown to black; claws (male) with strong tooth. Wings with an unusually contrasted pattern of whitish subhyaline, dark brown and paler brownish gray, arranged in the usual *monilifera* pattern but even more conspicuous than usual; cells *C* and *Sc*, with the stigma, dark brown; a series of four posterior extensions of the costal area, including a broad postarcular one, another at near one-third the length of cell *R*, the third over origin of *Rs*, the last over the anterior cord, all of these interconnected by somewhat paler washes with further dark brown marks on *Cu* and *m-cu*, the latter very conspicuous, occupying about the distal half of vein *Cu* but broken by a pale mark before *m-cu*; outer radial cells conspicuously darkened, more intensively so along vein R_{4+5} ; outer medial veins very narrowly but evidently seamed with dark brown; the white areas include a broad poststigmatal band that extends from *C* across cell 1st M_2 into bases of cells M_3 and M_4 ; outer end of cell R_5 and base of cell 2nd M_2 similarly whitened; basad of cord with an unusually contrasted white and brownish gray pattern, especially intricate in the bases of the cubital and anal cells; white areas in cell *R* with pale gray central washes; veins brown, brownish black in the patterned portions. Venation: Tip of R_{1+2} pale to atrophied; *m-cu* a little more than one-third *Rs*; petiole of cell M_1 a little exceeding *m*; cell M_4 broadest at base.

Abdominal tergites obscure yellow, trivittate with brown, the stripes more or less interrupted at the posterior borders of the segments, the lateral pair more defined near the bases of the individual segments; in female, stripes broader and more continuous; sternites yellow, with a more or less distinct

median darkening on outer segments; subterminal segments and much of hypopygium black. Male hypopygium (Fig. 2) with the caudal margin of the ninth tergite, *9t*, subtruncate, the inner angles or canthi of the lobes slightly produced into short, obtusely rounded blades, separated by a narrow linear notch. Outer dististyle on outer half expanded into an elongate head, being about twice as wide at the broadest point as it is at midlength. Inner dististyle with beak, *id*, moderately stout; setae of outer margin delicate, not forming a powerful linear series as in *pantherina* and some others, the tips produced into long hair-like points but not bent at a right angle. Eighth sternite, *8s*, with the lobe small, oval, narrowed outwardly.

Holotype, ♂, Tabay, Mérida, altitude 1,760 meters, September 1942. *Allotopotype*, ♀, pinned with type. *Paratopotypes*, 1 ♂, 1 ♀.

The specific name is that of a Carib tribe of Venezuela. Although allied to *Tipula chacopata* sp. n., the present fly is undoubtedly distinct, being most readily told by the structure of the male hypopygium, especially the ninth tergite and inner dististyle. Both species differ from *T. pantherina* Alexander and *T. armillata* Alexander in the short antennae of the male; from *T. mitua* Alexander, which has somewhat similar antennae, the two new species are readily told by the very different structure of the male hypopygium, particularly the gonapophyses and lobe of the eighth sternite.

LIMONIINAE

LIMONINI

54. *Limonia* (*Limonia*) *alfaroi* (Alexander).

1922. *Dicranomyia alfaroi* Alexander; Proc. U.S. Nat. Mus., 60, art. 25: 2-3.

El Junquito, Colonia Tovar, January 3, 1938 (*Vivas-Berthier*). Widespread in Central and South America.

55. *Limonia (Limonia) pampæcila* (Alexander).

1922. *Dicranomyia pampæcila* Alexander; Proc. U.S. Nat. Mus., 60, art. 25: 1 - 2.

Silla de Caracas, lower paramo, altitude 2,300 meters, December 21, 1931 (*J. G. Myers*). Wide-spread in Tropical America.

56. *Limonia (Limonia) roraimæ* Alexander.

1931. *Limonia (Limonia) roraimæ* Alexander; Amer. Mus. Novitates 491: 5, 8.

Mount Roraima, summit, altitude 8,600 feet, November 1927 (*G. H. H. Tate*). It should be noted that all records of biological specimens from the summit and high altitudes of Roraima are to be referred to Venezuela, rather than to Brazil or British Guiana, as has been done by various authors, including myself for the *Tipulidae*. The splendid paper by Phelps^(*) should be consulted.

57. *Limonia (Geranomyia) arecuna* Alexander.

1931. *Limonia (Geranomyia) arecuna* Alexander; Amer. Mus. Novitates 491: 11.

Mount Roraima, summit, altitude 8,600 feet, November 1927 (*G. H. H. Tate*).

58. *Limonia (Geranomyia) certhia* (Alexander).

1916. *Geranomyia certhia* Alexander; Proc. Acad. Nat. Sci. Philadelphia, 1916: 492 - 493.

Los Lechozos, D. F., March 13, 1938 (*Vivas-Berthier*). Los Canales, Naiguatá, D. F., altitude 720 meters, September 24, 1938 (*Vivas-Berthier*). Widely distributed in Central and northern South America.

(*) Phelps, William H. The geographical status of the birds collected at Mount Roraima. Bol. Soc. Venezolana de Ciencias Naturales, 36: 83 - 95; 1939.

59. *Limonia (Geranomyia) diabolica* sp. n.

General coloration of mesonotal praescutum reddish gray, with three narrow black stripes in addition to the blackened lateral borders; rostrum relatively short; halteres with knobs brownish black; femora yellow with a narrow and inconspicuous brown subterminal ring; wings whitish subhyaline, heavily patterned with darker brown subcostal areas and paler brownish gray washes; a common major dark area over fork of *Sc* and origin of *Rs*; *Sc* short, *Sc*₁ ending a short distance beyond origin of *Rs*; abdominal tergites brownish black, sternites reddish brown; male hypopygium with the rostral prolongation of the ventral dististyle small but bearing on its outer edge a very long flattened lobe that bears two unusually long slender spines, one terminal, the other arising on face of basal lobe.

Male: Length, excluding rostrum, about 7 mm.; wing 7.5 mm.; rostrum about 2 mm.

Rostrum relatively short, black; palpi black. Antennae black throughout; flagellar segments cylindrical or nearly so, the outer segments with verticils unusually small and sparse; terminal segment a trifle longer than the penultimate. Head gray, with two blackened longitudinal stripes on posterior vertex; anterior vertex very narrow.

Pronotum reddish gray, blackened medially. Mesonotal praescutum with the ground color reddish gray, with three narrow black stripes, additional to the broader blackened lateral borders; intermediate lateral stripes about equal in width to the interspaces; scutal lobes dark brown, patterned with darker, the median area paler gray; scutellum dark brown, sparsely pruinose, the posterior border more reddened; postnotum brownish black, sparsely pruinose. Pleura brownish black, sparsely pruinose; dorsopleural membrane dark. Halteres with stem yellow, knob brownish black. Legs with the coxae dark brown, the tips more brightened; troch-

anters yellow; femora obscure yellow, clearer basally, before the tips with a relatively narrow and inconspicuous brown subterminal ring, this subequal in extent to the yellow tip; tibiae and tarsi obscure yellow, the outer tarsal segments brownish black; claws with one major and additional minor teeth. Wings with the ground whitish subhyaline, patterned with darker brown areas and much paler brownish gray washes; the major darkenings include a series of three in cell *Sc*, the first just beyond the level of the arculus; second over the supernumerary crossvein, the third a common area over the fork of *Sc* and origin of *Rs*; stigma similarly darkened, the color produced proximad along vein R_1 as a narrow point; less conspicuous marks along cord, outer end of cell $1st M_2$ and at tip of R_3 ; the palest dark washes are more extensive but vague, occupying most of all cells proximad of cord, more conspicuous at ends of anal veins; cell *Sc* and adjoining veins brighter yellow in the interspaces; remaining veins obscure yellow in the ground areas, darker brown in the patterned fields. Venation: *Sc* short, Sc_1 ending just beyond origin of *Rs*, Sc_2 at its tip; in one wing of type, *Sc* a little longer than in the other; *Rs* relatively long, approximately twice *m-cu*; basal section of R_{4+5} gently arcuated; cell $1st M_2$ about equal in length to vein M_{1+2} beyond it; *m-cu* close to fork of *M*, a little shorter than distal section of Cu_1 ; vein $2nd A$ gently sinuous, the cell wide.

Abdominal tergites brownish black, the sternites more reddish brown; hypopygium brownish black. Male hypopygium (Fig. 4) with the tergite, *9t*, relatively large, notched medially, the lobes rounded, with thickened margins and abundant strong setae. Basistyle, *b*, relatively small, its total area only about one-third the ventral dististyle, the ventro-mesal lobe simple. Dorsal dististyle a powerful blackened rod, strongly curved at near midlength and thence gradually narrowed to the acute tip. Ventral dististyle, *vd*, large and fleshy, the rostral prolongation and its armature of very pec-

ular conformation; rostrum small and narrow, bearing on its outer face a very long flattened lobe, this extended at apex into a long curved spine that is about as long as the dorsal dististyle; at beyond midlength, the flattened basal portion bears a second spine of approximately the same size, this from a slightly smaller basal tubercle than that of the outer spine. Anal tube narrow, with several unusually long coarse setae. Gonapophyses, *g*, with the mesal-apical lobe strongly curved, its tip acute.

Holotype, ♂, altos de Choroni, 1,600 meters alt., Aragua, November 1940 (*Lichy*).

Generally similar to species such as *Limonia* (*Geranomyia*) *plumbeipleura* (Alexander) in the coloration of the body, wing pattern and venation, differing very conspicuously in the rather remarkable male hypopygium, especially the rostral prolongation of the ventral dististyle and its appendage.

60. *Limonia* (*Geranomyia*) *fluxa* Alexander.

1941. *Limonia* (*Geranomyia*) *fluxa* Alexander; Journ. N.Y. Ent. Soc., 49: 350 - 351.

Rio Chacaito, Miranda, altitude 980 meters, September 18, 1938 (*Vivas-Berthier*); Collector's Nº 47. Wide-spread in Central and northern South America.

61. *Limonia* (*Geranomyia*) *furor* sp. n.

General coloration of mesonotum gray, the praescutum with three intermediate darker brown stripes; rostrum relatively long, about one-half the remainder of body; vertex with a light gray central line, the posterior vertex on either side more blackened; pleura dark plumbeous brown; knobs of halteres blackened; femora obscure yellow, with a narrow brown subterminal ring; wings grayish yellow, with a moderately heavy brown pattern; including four major costal areas, the third a common one over fork of *Sc* and origin of *Rs*; male

hypopygium with the rostral prolongation of the ventral dististyle slender, on outer face before midlength with a single large bulbous tubercle that bears a single or two very closely appressed spines; gonapophyses with mesal-apical lobe appearing as an unusually long and slender darkened spine.

Male: Length, excluding rostrum, about 5 mm.; wing 5.5 mm.; rostrum about 2.5 mm.

Rostrum relatively long, about one-half the length of body, black, the tips slightly paler; maxillary palpi black. Antennae black throughout; flagellar segments oval. Head with central portion light gray, this line continued virtually to the occiput, on the posterior vertex bordered on either side by a blackened line, the sides of the vertex passing into dark gray.

Pronotum chiefly infuscated. Mesonotal praescutum with the ground color gray, with a brownish tinge, especially adjoining the three narrow, darker brown, discal stripes; lateral praescutal borders blackened; posterior sclerites of notum brown, sparsely plumbeous, each lobes with blackened areas, especially a stripe on either side of the median line; scutellum and postnotum more plumbeous brown. Pleura chiefly dark plumbeous brown. Halteres with stem light yellow, knob blackened; outer portion of stem before knob with a few elongate setae. Legs with the fore and middle coxae brownish yellow, the posterior pair clearer yellow; trochanters yellow; femora obscure yellow, with a narrow brown subterminal ring that is about as extensive as the yellow apex; remainder of legs obscure yellow, the terminal tarsal segments brownish black; claws with a single long basal spine. Wings grayish yellow, with a moderately heavy brown pattern; a series of four costal areas, the first near arculus; the second at the supernumerary crossvein in cell *Sc*; the third a common area over the fork of *Sc* and origin of *Rs*; last area at stigma; restricted seams over the cord and outer end of cell *1st M*₂; small marginal brown spots, the largest at *R*₃, *1st A* and *2nd A*; veins brownish yellow, darker brown in the patterned por-

tions, clearer yellow in the interspaces of veins *Sc* and *R*. Venation: *Sc* relatively short, *Sc*₁ ending about opposite one-fourth to one-fifth the length of *Rs*, *Sc*₂ near its tip; cell 1st *M*₂ about equal in length to vein *M*₁₊₂ beyond it; *m-cu* about one-fifth its length beyond the fork of *M*; vein 2nd *A* generally straight, the cell wide.

Abdomen, including the hypopygium, brown. Male hypopygium (Fig. 5) having the caudal margin of the ninth tergite, *9t*, with a broad U-shaped notch, the margins thickened and provided with long coarse setae. Basistyle, *b*, relatively small, its total area about one-third that of the ventral dististyle; ventromesal lobe relatively large, elongate-oval. Dorsal dististyle a slightly curved sickle, its tip acute. Ventral dististyle, *vd*, a large fleshy lobe, the rostral prolongation slender, on outer face before midlength with a single large bulbous tubercle that terminates in a single spine or in two very closely applied spines, this about twice as long as the basal enlargement. Gonapophysis, *g*, with mesal-apical lobe appearing as an unusually long, slender, darkened spine, gently curved, exceeding in length the spine and tubercle of the ventral dististyle.

Holotype, ♂, Río Chacaíto, Miranda, altitude 980 meters, September 18, 1938 (*Vivas-Berthier*); Collectors's Nº 31.

The present fly is readily told by the diagnostic characters previously listed. In the structure of the male hypopygium, it is most similar to species such as *Limonia* (*Geranomyia*) *deliciosa* Alexander, but actually belongs to a distinct subgroup of species having the praescutal stripes quite different from those in *deliciosa* and allies, that is, with three darkened discal stripes instead of two. I am unable to say definitely whether there is a single rostral spine or two such spines so closely applied to one another as to appear as one.

62. *Limonia* (*Geranomyia*) *guatemalensis* (Alexander).

1916. *Geranomyia guatemalensis* Alexander; Proc. Acad. Nat. Sci. Philadelphia, 1916: 487.

Caracas, November 26, 1938 (*Vivas-Berthier*). Wide-spread in Middle and South America. The exact relationships of *L. (G.) argentiniensis* (Alexander) and *L. (G.) austroandina* (Alexander) with the present fly remain in doubt but all are unquestionably very closely interrelated.

63. *Limonia (Geranomyia) marthæ* Alexander.

1930. *Limonia (Geranomyia) marthæ* Alexander; Ann. Ent. Soc. America, 23: 726-728.

Venezuelan Andes, Mérida, without more exact locality, June 1938 (*Vivas-Berthier*); Collector's Nº 22. Described from Mount Santa Marta, Colombia; new to Venezuela.

64. *Limonia (Geranomyia) plumbeipleura* (Alexander).

1916. *Geranomyia plumbeipleura* Alexander; Trans. Amer. Ent. Soc., 42: 10 - 11.

Los Lechozos, near Caracas, March 13, 1938 (*Vivas-Berthier*); Collector's Nº 23. Los Canales, Naiguatá, altitude 720 meters, September 24, 1938 (*Vivas-Berthier*). Maracay, Aragua, June 24, 1938 (*Vivas-Berthier*). Widely distributed over northern South America.

65. *Limonia (Geranomyia) rubiginosa* Alexander.

1931. *Limonia (Geranomyia) rubiginosa* Alexander; Amer. Mus. Novitates 491: 11 - 12.

Mount Duida, November 29 - December 10, 1928 (*G. H. H. Tate*).

66. *Limonia (Geranomyia) tatei* Alexander.

1931. *Limonia (Geranomyia) tatei* Alexander; Amer. Mus. Novitates 491: 9 - 10.

Mount Roraima, summit, altitude 8,600 feet, November 1928 (*G. H. H. Tate*).

67. *Limonia (Geranomyia) tibialis* (Loew).

1851. *Aporosa tibialis* Loew; Linnaea Entomol., 5: 397.

Caracas, November 26, 1938 (*Vivas Berthier*). Los Canales, Naiguatá, D.F., September 24, 1938 (*Vivas-Berthier*). This is probably the most widely distributed crane-fly in Tropical America, occurring not only on the mainland but on many of the adjacent islands, as the Greater Antilles and the Galapagoes.

68. *Limonia (Geranomyia) walkeri* Alexander.

1930. *Limonia (Geranomyia) walkeri* Alexander; Ann. Ent. Soc. America, 23: 730 - 732.

Caracas, November 16, 1938 (*Vivas-Berthier*). Río Chacáito, Miranda, altitude 980 meters, September 18, 1938 (*Vivas-Berthier*); Collector's Nº 27. Rancho Grande, Aragua, altitude 1,100 meters, September 5, 1937 (*Vivas Berthier*). This very distinct fly ranges from Colombia to southeastern Brazil.

69. *Limonia (Dicranomyia) dolerosa* Alexander.

1931. *Limonia (Dicranomyia) dolerosa* Alexander; Amer. Mus. Novitates 491: 8 - 9.

Mount Roraima, summit, altitude 8,600 feet, November 1927 (*G. H. H. Tate*).

70. *Limonia (Dicranomyia) mutata* Alexander.

1935. *Limonia (Dicranomyia) mutata* Alexander; Ann. Ent. Soc. America, 28: 321 - 322.

Slopes of Mount Roraima, altitude 6,000 - 7,000 feet, November 19, 1932 (*J.G. Myers*).

71. *Limonia (Dicranomyia) simillima* (Alexander).

1912. *Furcomyia simillima* Alexander; Canad. Ent., 44: 361 - 362.

Silla de Caracas, altitude 2,300 - 2,400 meters, December 21, 1930 (*J. G. Myers*). Wide-spread in Tropical America.

72. *Limonia (Peripheroptera) aberrans* (Schiner).

1868. *Rhamphidia aberrans* Schiner; Novara Reise, Diptera, p. 47, pl. 2, fig. 3.

1887. *Peripheroptera aberrans* Osten Sacken; Berlin. Ent. Zeitschr., 31: 176.

The type of this fly, in the original description stated to have come from Colombia, actually was taken in Venezuela by Alexander Lindig in 1864. Through the kindness of Dr. Hans Zerny I was enabled to study the types of the various species of *Peripheroptera* described by Schiner and at this time am supplying the additional notes on these types made at that time (1921).

Female: Length about 8 mm.; wing 10 mm.

Rostrum and palpi dark brown. Antennae dark brown throughout. Head dark brown; anterior vertex wide.

Pronotum dark brown. Mesonotum brownish black, the humeral region of the praescutum very little brighter. Pleura brownish black. Halteres dark brown, the basal half of stem brighter. Legs with the coxae blackish, the fore pair with the posterior lateral face brighter; trochanters black, the fore pair obscure yellow; femora dark brown, the fore pair conspicuously yellow on basal third; middle and hind femora more nearly unicolorous brown. Wings with a strong yellowish tinge; a conspicuous brown spot at arculus; a comparatively narrow but conspicuous brown seam along the cord, ending in the rather ill-defined stigma; veins dark brown. Venation: Arculus at near one-fourth the wing length; Sc_1 ending opposite origin of R_s , Sc_2 slightly beyond midlength of distance between arculus and origin of R_s ; R_s longer and straighter than common in the subgenus, about one-half longer than the basal deflection of R_{4+5} ; free tip of Sc_2 immediately proximal of R_2 ; with a spur of R_{1+2} beyond it; inner ends of cells R_3 , R_5 and 1st M_2 in transverse alignment; cell 1st M_2 rectangular-

ly pentagonal, gently widened outwardly, the second and third sections of M_{1+2} subequal; basal deflection of M_3 about one-half longer than M .

Abdomen black, the posterior margins of the subterminal tergites indistinctly paler. Ovipositor with the valves horn-colored, blackened basally; hypovalvae straight, compressed; cerci comparatively small, slender, acute at tips, gently up-curved.

73. *Limonia (Peripheroptera) angustifasciata* (Alexander).

1922. *Peripheroptera angustifasciata* Alexander; Trans. Ent. Soc. London 1922: 35 - 36.

Described from "Venezuela", without further data, from the Old Collection of the Vienna Museum.

74. *Limonia (Peripheroptera) glochinoides* (Alexander).

1922. *Peripheroptera glochinoides* Alexander; Trans. Ent. Soc. London 1922: 36 - 37.

The type was from Venezuela, without more exact locality data, collected in 1864 by Alexander Lindig. It was part of the "Novara" series but had not been studied by Schiner.

75. *Limonia (Peripheroptera) nitens* (Schiner).

1868. *Peripheroptera nitens* Schiner; Novara Reise, Diptera, p. 47, pl. 2, fig. 3.

This species is of particular interest in that it is the type of the subgenus *Peripheroptera* Schiner. As was the case with many other species described by Schiner, the types were indicated as having come from Colombia. From an examination of the types in 1921, as discussed under *aberrans*, it was found that the female, at least, was from Venezuela, collected in 1864 by Alexander Lindig. The following additional notes on the types may be of value.

Male: Length about 6 mm.; wing 10.2 mm.

Female: Length about 5.5 mm.; wing 7.7 mm.

Rostrum reddish brown; palpi dark brown. Antennæ dark brown throughout; scape and pedicel large; flagellar segments with long verticils. Head dark brown, becoming more reddish on occiput; head narrowed behind.

Pronotum reddish brown. Mesonotum and pleura shiny reddish brown, without definite darker markings. Halteres with stem pale, knob dark brown. Legs with the coxae reddish brown; trochanters yellow; femora yellow, the tips broadly dark brown; tibiae obscure brownish yellow, soon passing into brown; tarsi brown; claws (male) slender, with an acute basal spines. Wings subhyaline; cells C , Sc and R_1 , with the prearcular field, yellow; conspicuous brown seams at wing-base, arculus, origin of Rs , cord, outer end of cell $1st\ M_2$, Sc_2 and R_2 ; wing-tip narrowly darkened; longitudinal veins narrowly seamed with brown; centers of cells $2nd\ M_2$ and M_3 pale; arculus in male at just before one-third the length of wing; costa dilated opposite end of Sc_1 . Venation: Sc_1 ending opposite origin of Rs , Sc_2 at near mid-distance between arculus and origin of Rs ; R_2 very long, a little exceeding the long cell $1st\ M_2$; Rs short, arcuated, about one-half longer than the basal deflection of R_{4+5} ; cell R_3 very wide at proximal end, the inner end of cell R_5 correspondingly narrowed; cell $1st\ M_2$ very elongate rectangular, longer than the veins beyond it; m a little shorter than the basal deflection of M_3 ; $m-cu$ a short distance beyond fork of M .

Abdomen black, the posterior margins of the segments obscure reddish brown, these areas broader on the sternites.

The female is very similar to the male but smaller, as indicated above. The venational details differ somewhat: Cell $1st\ M_2$ much less elongate, shorter than vein M_{1+2} beyond it, pentagonal, widened outwardly; first section of vein M_{1+2} arcuated; Rs subequal to basal section of R_{4+5} ; $m-cu$ immediately before the fork of M .

76. *Limonia (Peripheroptera) vivas-berthieri* Alexander.

1940. *Limonia (Peripheroptera) vivas-berthieri* Alexander; Rev. de Entomologia, 11: 899 - 900.

The type and only known specimen was from the Venezuelan Andes, State of Mérida, collected in June 1938, sent to me by Vivas-Berthier.

(18) *Limonia (Neolimnobia) diva* (Schiner), var.

1868. *Limnobia diva* Schiner; Novara Reise, Diptera, p. 46.

This fly had been discussed earlier in this series of papers (Part II). An additional station is Mount Roraima, summit, altitude 8,600 feet, November 1927 (*G. H. H. Tate*).

77. *Limonia (Rhipidia) breviramosa towarensis* subsp. n.

Male: Length about 6.5 mm.; wing 7.4 mm.; antenna about 1.8 mm.

As in the typical subspecies, *breviramosa* Alexander, of southeastern Brazil, differing especially in the wing pattern.

Antennal flagellum unipectinate, the branches stout, on flagellar segments three to nine, inclusive, about as long as the segments; flagellar segments ten and eleven simple, abruptly whitened; terminal segment elongate, pointed at outer end, exceeding in length the penultimate segment; basal antennal segments uniformly darkened, including the pedicels of the segments; at about midlength of organ, the pedicels become paler, more yellowish. Wings with the dark areas small, much less extensive than the pale interspaces; in the typical form, exactly the reverse is true and the dark areas are fully twice as wide as the interspaces; stigma in present fly short-oval. Male hypopygium virtually identical in both flies.

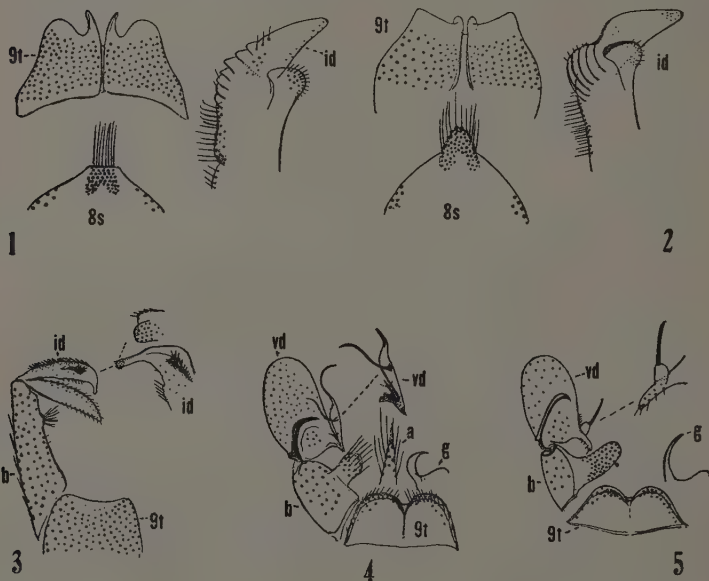
Holotype, ♂, El Junquito, Colonia Tovar, January 3, 1938 (*Vivas-Berthier*).

Named for the famous German Colony founded in 1842 by Agostino Codazzi (born 1793, Lugo, Italy; died 1859, Pueblito, Colombia).

78. *Limonia (Rhipidia) conica turrifera* Alexander.

1931. *Limonia (Rhipidia) conica turrifera* Alexander;
Amer. Mus. Novitates 491: 8.

Mount Duida, November 4-18, 1928 (*G. H. H. Tate*).



EXPLANATION OF TEXT-FIGURES 1-5

Fig. 1.—*Tipula chacopata* sp. n.; male hypopygium.

Fig. 2.—*Tipula palenca* sp. n.; male hypopygium.

Fig. 3.—*Tanytremna (Tanytremna) incompleta* sp. n.; male hypopygium.

Fig. 4.—*Limonia (Geranomyia) diabolica* sp. n.; male hypopygium.

Fig. 5.—*Limonia (Geranomyia) furor* sp. n.; male hypopygium.

(Symbols: *a*, anal tube; *b*, basistyle; *g*, gonapophysis; *id*, inner dististyle; *s*, sternite; *t*, tergite; *vd*, ventral dististyle).

Ru⁵
DOCUMENTS POUR SERVIR A L'ETUDE DES
LEPIDOPTERES DU VENEZUELA

(2e. Note) ⁽¹⁾

par

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Caracas.

***SUR UN CAS D'ADAPTATION A UN NOUVEAU REGIME
ALIMENTAIRE CHEZ Terias gratiosa D.-H.
(fam. Pieridae).***

Sur des jeunes plantules de *Cassia siamea* Lam., cultivées dans des pots placés sur une fenêtre du 1er. étage de notre maison à Caracas, et qui provenaient de graines que j'avais rapportées de l'Indochine française ⁽²⁾, je fus surpris, un matin de septembre 1936, d'y voir une ♀ de *Terias gratiosa* qui déposait ses oeufs, blancs et cannelés, sur les bourgeons et sous les folioles.

On sait que certaines chenilles de *Terias* américaines s'alimentent des feuilles et des fleurs de plusieurs espèces de *Cassia* indigènes. Ainsi, il n'est pas rare de voir, dans les jar-

(1) 1ère. Note in Bol. Acad. Cienc. Fís., Matem., Nat., Año X, Tomo VIII, 1er. Semestre 1944, Caracas.

(2) Le *Cassia siamea* (Césalpinées) est un grand arbre originaire de l'Indochine; il y est commun dans les régions côtières du sud de l'Annam (Phanrang) et à l'intérieur, vers 400 m. d'altitude, sur le Plateau du Darlac, la fameuse région des "Moïs" chasseurs d'éléphants.

dins de Caracas et dans les champs des environs, des ♀ ♀ de *Terias* recherchant les diverses espèces de *Cassia* qui y abondent.

J'ai de bonnes raisons de croire que mes *Cassia siamea*, sur lesquels ont été pondus des oeufs de *T. gratiosa*, sont les premiers introduits au Vénézuéla⁽³⁾. C'est donc une plante inconnue des *Terias* vénézuéliennes; mais les ♀ ♀ ont su reconnaître dans la nouvelle espèce les mêmes qualités alimentaires que celles des *Cassia* indigènes. Par un instinct supérieur qui nous déconcerte vraiment et que nous ne pouvons expliquer, elles ont immédiatement reconnu l'affinité botanique entre les *Cassia* du Vénézuéla et la congénère asiatique.

Les *Terias gratiosa*, délicates Piérides qui volent toute l'année, sont extrêmement communes dans tout le Vénézuéla septentrional. On les rencontre depuis le littoral aride jusqu'aux montagnes forestières, vers 1.700 m. d'altitude.

Cette espèce, qui varie individuellement dans le contour des ailes inférieures caudées et dans le dessin du dessus et du dessous des quatre ailes, est sensible aux changements de saisons, mais l'étude de ses formes n'a pas encore été faite au Vénézuéla.

OUVRAGES CONSULTÉS

RÖBER. — in "SEITZ", Les Macrolépidoptères du Globe, Vol. V, p. 81, pl. 24b, 1909.

Frédéric SCHNACK. — La Vie des Papillons, trad. de l'allemand, Paris, 1930.

" " — Au Royaume merveilleux des Papillons, trad. de l'allemand, 1931.

R. FERREIRA D'ALMEIDA. — Revisão das *Terias* americanas, Parte I-II, 1936, suplem., 1938.

(3) La même année, j'ai donné ces plantules au Dr. Henry PITTIER, célèbre botaniste connu pour ses admirables travaux sur la flore américaine; il les a transplantées dans le jardin de sa villa "Ingomar", à Turmerito, près de Caracas. Ces *Cassia siamea* sont maintenant de grands et beaux arbres de 12 à 15 m. de haut; ils ont déjà produit des fleurs aromatiques jaunes très agréables à la vue, et des graines; l'espèce s'est donc très bien acclimatée au Vénézuéla.

R 45

DOCUMENTS POUR SERVIR A L'ETUDE DES
SPHINGIDAE DU VENEZUELA (Lépid., Hétéér.)

(6e. Note)

par

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Caracas.

***SUR UN CAS D'ADAPTATION A UN NOUVEAU REGIME
ALIMENTAIRE CHEZ *Madoryx oiclus* Cr.***

Étude Biologique Partielle.

Dans les avenues des environs immédiats de Caracas, ombragées de ces beaux arbres que les vénézuéliens appellent "Apamates", on trouve communément des cocons de *Madoryx oiclus*, attachés entre les gerçures de l'écorce. L'apamate est un arbre splendide, originaire des forêts de terre chaude du Vénézuéla. Son emploi comme ornement des promenades et des parcs est amplement justifié par ses admirables fleurs rose clair, nuancées de jaune à leur base, qui couvrent l'arbre à l'époque où celui-ci a perdu ses feuilles. Les avenues sont alors parsemées d'innombrables pétales, sous une voûte entièrement rose. L'apamate, dont le nom scientifique est *Tecoma pentaphylla* Juss., appartient à la famille des *Bignoniacées*.

En d'autres avenues de Caracas, dans les jardins de la ville et des environs, et aussi, mêlés aux Apamates, on voit d'autres beaux arbres d'ornement aux fleurs rouge vermillon intense, dont l'harmonie heureuse avec leur feuillage vert sombre — harmonie parfaite de complémentaires — provoque l'admiration des voyageurs et même des habitants des lieux, pourtant familiarisés avec ces splendeurs. Ces arbres, qu'on appelle ici "Tulipán africano" (*Spathodea campanulata* P. Beauv.), sont d'origine africaine, du Gabon sur la côte occidentale.

Or, les chenilles de *M. oiclus* ont adopté, pour y vivre, cette nouvelle essence.

C'est ainsi qu'on ne peut que s'émerveiller de l'instinct remarquable des ♀ ♀ qui leur fait trouver à coup sûr les plantes propres à l'alimentation de leur progéniture, car les *Spathodea* appartiennent aussi à la famille des *Bignoniacées*.

Cette nouvelle observation vient confirmer un grand nombre de remarques similaires faites en Europe, chez les *SPHINGIDAE* précisément, par exemple chez: *Deilephila nerii* L., *Sphinx ligustri* L., *Acherontia atropos* L., etc., dont les ♀ ♀ migratrices, qui ne trouvent pas les plantes nourricières habituelles de leurs chenilles dans les nouveaux territoires qu'elles parcourent, savent néanmoins rencontrer d'autres essences appartenant à la même famille ou au même groupe.

Je n'ai pas encore étudié à fond la biologie de ce sphinx, mais j'apporte ici les quelques résultats obtenus à ce jour.

LA CHENILLE (fig. 1) que je ne connais que sous sa forme avancée, proche du moment qui lui impose la confection de son cocon, a environ 75 mm. de long. Elle n'a aucun appendice caudal; une plaque dorsale triangulaire, dont le sommet est dirigé vers l'arrière, est située sur le 11e. segment; la pointe assez aigüe de ce triangle semble remplacer la corne caduque (comme chez *M. pluto*, étudiée par Moss au Brésil, les jeunes chenilles de *M. oiclus* doivent être pourvues d'une longue corne caudale). La tête qui est gris vert pâle à nuances rosées, est dessinée de gris et ponctuée par place de très fins points

noirs. Les pattes thoraciques, très claires, sont bleutées à nuances rosées et finement dessinées de noir; les articles sont soulignés d'une ligne noire. Les pattes abdominales de couleur chair sont largement cerclées de noir. Le clapet anal est rosé-brun clair, dessiné de gris et piqué de noir. Le premier segment est rosé-gris dessiné de brun-gris et pourvu de fines lignes noires. Les 2e. et 3e. segments sont rosé-gris sur le dessus et sous le ventre; les côtés sont vert très clair; dessins marbrés bruns et gris bleu, çà et là très noirs; une nuance rousse couvre le dessus du devant du 2e. segment; sur les côtés postérieurs de ce même segment, il y a une fine et courte ligne blanche transversale, cerclée de sombre et sur les côtés antérieurs, on y voit une ligne gris bleu entourée de gris cendré. Tous les autres segments sont rose chair avec des ombres vertes éparses, mais surtout visibles aux endroits occupés par les dessins noirs et gris. De très fines lignes noires et des points également noirs sont parsemés sur tout le corps. Du 4e. segment jusqu'au 10e. il y a de chaque côté une ligne latérale composée de très fins éléments noirs. Le ventre est blanc vert très clair, nuancé de rose; il est pourvu de très fins dessins noirs.

Je ne puis dire si cette description s'accorderait en tout point avec celle de la chenille de même stade, mais moins avancée, car je ne l'ai pas encore étudiée.

Quand la chenille est dans son cocon, elle est encore extrêmement vive; si on l'inquiète, elle tourne vertigineusement sur elle-même: c'est une véritable rotation qui peut se prolonger une vingtaine de fois (il en est, du reste, exactement de même chez sa chrysalide).

COCONS. — Ils sont tissés de préférence sur l'écorce rugueuse des *Tecoma* ou des *Spathodea* nourriciers, mais j'en ai trouvé aussi un petit nombre sur d'autres arbres situés dans leur voisinage (sur des "cédreles", par exemple); on les trouve souvent aussi sous les moulures en platebande des piliers et des balustrades qui agrémentent certaines avenues de la capitale. Ils sont tissés sur les troncs à des hauteurs variables, depuis la base près du sol jusqu'à la bifurcation des grosses

branches, à plus de 5 ou 6 mètres de haut. Sur quelques arbres aux écorces gercées, les cocons remplissent complètement certaines cavités; ils en comblent les creux; ils font corps avec la surface du tronc. Leur disposition ne semble pas obéir à une orientation particulière; j'en ai vu, en effet, sur n'importe quelle face des arbres d'une même avenue.

Le cocon est gros, arrondi vers la base et il s'amincit en fuseau vers l'extrémité supérieure d'où sortira le papillon (fig. 2). Il est fait d'un tissu serré, presque toujours blanc pur, moins fréquemment rose. Sur plus de 30 cocons récoltés, j'en ai eu quatre ou cinq d'une tonalité rose clair. La couleur rose s'apparente bien au tronc des *Apamates*, mais on ne peut la considérer comme une couleur protectrice en relation avec le mimétisme, étant donné que presque tous les cocons sont blancs, qu'ils contrastent avec leur support et sont par conséquent très visibles. Le cocon s'enlève sans grande difficulté, à la main, de l'endroit où il a été tissé. L'enveloppe est suffisamment serrée pour cacher complètement la chrysalide enfermée dedans. Il arrive aussi que de légères particules d'écorce se trouvent mêlées à la soie, mais il n'y en a pas assez pour offrir une protection aux chrysalides, par imitation, car les cocons frais tissés, d'un blanc intense, sont à la lumière du jour parfaitement visibles de très loin; la nuit même, à la lueur incertaine des lampes électriques des avenues, on les décèle assez facilement. Quand les cocons sont vieux, ils ont perdu leur belle couleur blanche; ils sont gris poussiéreux ou brunâtres, d'un aspect sale, terreux; c'est même un indice certain, quand on recherche des cocons, d'une coque déjà vide.

A certaines époques de l'année, on trouve assez communément des cocons. C'est ainsi qu'une toute récente promenade de 3 h., le long d'une avenue d'environ deux km. et plantée des deux côtés de *Tecoma pentaphylla*, m'en a procuré une quinzaine (20 décembre, fin de la saison des pluies).

CHRYSLIDE. — Longueur: ♂ 50-55 mm., ♀ : 48-60 mm. Elle est de forme élancée, sans aucun appendice saillant, mais la céphalothèque est prolongée sous forme d'une courte protubérance arrondie. C'est une chrysalide d'aspect funèbre;

elle ressemble beaucoup à celle de *M. pluto*, dessinée par A. M. Moss, dans son ouvrage sur les *SPHINGIDAE* de Pará (pl. VI, fig. 2 e), c'est-à-dire qu'elle est noire, mate, avec les segments 4-5-6 cerclés à leur base d'une bande blanc jaune vieil ivoire (N° 259, SEGUY, Code Universel des Couleurs) de contours irréguliers et nuancée souvent de roux pâle sur le devant; chez quelques chrysalides, cette nuance rousse peut se prolonger sur presque tout le pourtour en se fondant dans la tonalité adjacente noire; dans ce cas, les bandes acquièrent une tonalité jaune d'os. Le crémaster est terminé par une pointe aigüe. Une seule des chrysalides observées était d'une couleur beaucoup moins sombre; sa tonalité foncière était brun rouge foncé sur les alaires, avec les segments abdominaux noir rougeâtre. L'imago-♀ provenant de cette chrysalide n'était pas sensiblement différente des autres imagos.

Comme nous l'avons déjà dit, les chrysalides sont extrêmement sensibles. Le moindre contact, si léger soit-il, suffit à les effrayer; elles s'agitent alors éperdûment en tous sens et des mouvements de contraction des segments abdominaux, alternent avec une volte-face ou même avec des mouvements de rotation très rapides, qui les font ressembler à des toupies; c'est ainsi que les très fines gouttelettes d'eau qui tombent d'un vaporisateur, lorsqu'on les humecte en période sèche, suffisent à leur faire perdre toute tranquillité.

Sur trente deux naissances, je n'ai eu qu'une seule chrysalide parasitée. Celle-ci était molle, ne réagissant plus au toucher et les bords des segments abdominaux n'étaient pas blancs mais noirs. Quelques jours après, il en sortait plus de 40 petits hyménoptères, par trois grands trous pratiqués sur les côtés des segments.

IMAGO. — Que ce soit en saison sèche ou pendant les pluies, la diapause nymphale, depuis la formation de la chrysalide jusqu'à la naissance de l'imago peut être de 23 à 29 jours. Du moment où la chenille tisse son cocon jusqu'à la nymphose, 5 à 7 jours sont nécessaires. Depuis la confection du cocon jus-

qu'à l'éclosion du papillon, il peut s'écouler occasionnellement 45 jours. Les imagos naissent, soit au crépuscule, soit au début de la nuit ou beaucoup plus tard.

S'il est facile de trouver des cocons avec des chenilles ou des chrysalides, il n'en est pas de même des papillons. Je n'ai, pour ma part, jamais vu *M. oiclus* aux lampes de Caracas ou des avenues circonvoisines, d'où proviennent justement tous les cocons en ma possession. Je ne connais avec certitude, à Caracas, que deux ou trois cas de phototropisme positif chez cette espèce, observés par des amis qui m'en ont fait part. On peut donc vraiment admettre que les papillons ne sont pas facilement attirés par les lumières artificielles.

J'ai obtenu des élevages, à peu près le même nombre de ♂♂ que de ♀♀. (Une ♀ est née sans aucune trace d'aile postérieure gauche! A part cette étrange anomalie, elle était très bien formée).

La position de repos de *M. oiclus* est très typique (fig. 2). L'extrémité des palpes touche le support où le papillon est accroché de ses trois paires de pattes. Quand il est posé sur une surface plane, la courbure convexe, près de l'apex des ailes antérieures, en est séparée d'un demi-centimètre, quelquefois de 1 ou 2 mm. seulement. L'abdomen, énorme chez la ♀, s'arque fortement vers le haut; il n'est pas couvert par les ailes au repos. Les antennes sont cachées sous les ailes ⁽¹⁾. Quand le papillon est inquiet, il espace encore un peu plus les ailes du support ou bien il relève légèrement l'extrémité des palpes.

Longueur de l'aile antérieure: ♂: 34-37½ mm. (de chrysalides mesurant respectivement 50-55 mm.)

 " " " : ♀: 39½-47 mm. (de chrysalides mesurant respectivement 48-60 mm.)

Spiritrompe: ♂: 35-41 mm.; ♀: 33-44½ mm. (la longueur de la spiritrompe n'est pas toujours en raison directe à la grandeur de l'imago).

(1) Sur la photo adjointe, le papillon, une ♀, est posé d'une façon absolument naturelle; j'ai, en effet, eu soin de le laisser reposer au moins une heure avant de le photographier. Le cocon d'où provient cette ♀, n'est pas appliqué sur son support d'origine; il en a été détaché, mais afin d'en apprécier la forme et la grandeur par rapport à l'imago, je l'ai mis sur la même tige de soutien.

Je connais *M. oiclus* au Vénézuéla, de la capitale (880-960 m. d'alt.), du massif du Naiguatá (700 m. d'alt.), et j'ai trouvé des cocons semblables, vides, aux abords de la ville de Maracay (Aragua, 450 m. d'altitude), à "Rancho Grande" (Aragua, 1.150 m. d'altitude) et sur la plage de la station balnéaire de Choroni (Aragua). ROTHSCHILD & JORDAN cite un exemplaire de leur collection qui provenait de Valencia (Carabobo, 450-500 m. d'alt.).

L'espèce doit vivre toute l'année en générations continues, les cocons se rencontrant à n'importe quelle époque et même en mars, période d'ordinaire très sèche.

Les dessins et les couleurs du papillon semblent assez constants. Je n'ai pas observé de variations dignes d'être mentionnées, si ce n'est les tonalités plus ou moins fortes et les dessins des ailes antérieures, plus ou moins visibles.

HABITAT. — *M. oiclus* est connue du Mexique (Veracruz, Morelos) jusqu'au Brésil (Rio de Janeiro) et aussi des régions intermédiaires, mais elle ne paraît pas encore avoir été trouvée aux Antilles. Les arbres qui alimentent les chenilles existant également dans les îles, même les *Spathodea*, que l'on connaît aussi sous le nom vulgaire — impropre il est vrai — de "Caoba de Santo Domingo", il ne serait pas étonnant que *Madoryx oiclus* y existât aussi.

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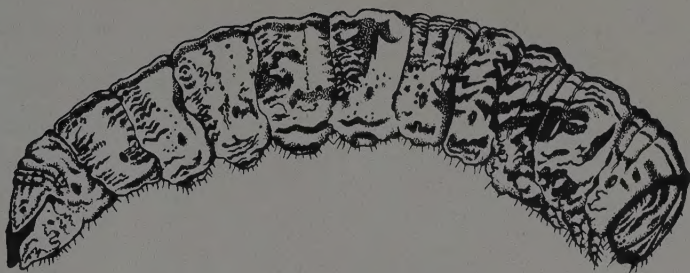


Fig. 1.
Madoryx oictus Cr.
 Chenille à son dernier stade (augmentée).

R. Lichy, del.

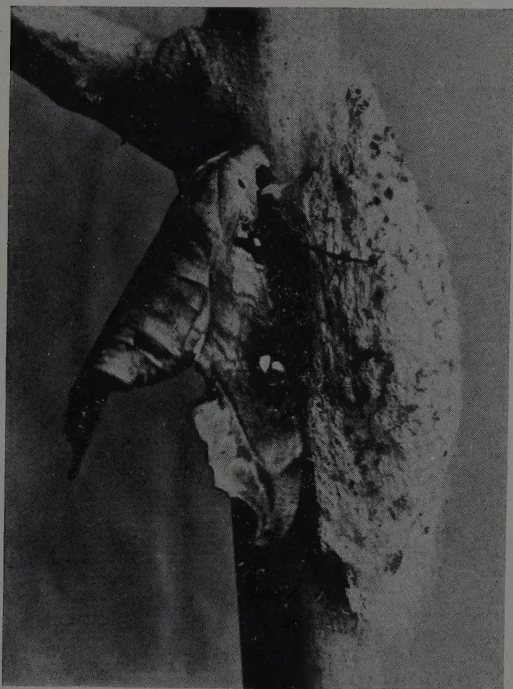


Fig. 2.
Madoryx oictus Cr. ♀
 et son cocon (augmenté de 1/5).

photo R. Lichy.

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